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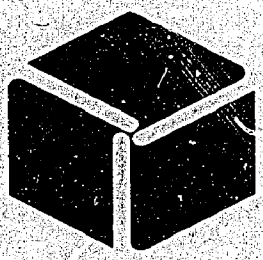
ABSTRACT

The Resource Requirements Prediction Model (RRPM) 1.6 is an instructional cost simulation model for use in all types of postsecondary institutions including community colleges, vocational schools, and large and small 4-year institutions with or without major research activities. The model provides institutions with a tool with which to analyze various institutional alternatives for the utilization of a limited set of resources. In addition, RRPM 1.6 generates information necessary for the preparation of instructional program budgets. Institutional data, either historical or projected, may be put into the model. The model then calculates the program cost information and implied resource requirements to undertake any given series of programs. RRPM generates 4 different types of reports: (1) organizational unit reports providing line-item budgets for various organizational units within the institution; (2) program budget reports indicating the discipline or department contributions to various instructional programs; (3) institutional summary reports; and (4) formatted display reports that show all parameter data for the institution. (Author/HS)

INTRODUCTION TO THE RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

Technical Report 34A

National Center for Higher Education Management Systems at WICHE



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THE RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

INTRODUCTION TO

THE RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

Technical Report No. 34A

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This edition of Introduction to the Resource Requirements Prediction Model 1.6 supersedes all previous draft editions of the same title.

ABSTRACT

The Resource Requirements Prediction Model (RRPM) 1.6 is an instructional cost simulation model for use in all types of postsecondary institutions including community colleges, vocational schools, and large and small four-year institutions with or without major research activities.

RRPM 1.6 is a more flexible and usable analytic tool than earlier NCHEMS cost simulation models. While it is an evolutionary product, RRPM 1.6 does not negate institutions' past experience in the area of instructional cost simulation. Almost all of the data that have been collected for either the Resource Requirements Prediction Model 1.3 or the Cost Estimation Model can be readily used with RRPM 1.6.

RRPM 1.6 provides institutions with a tool with which to analyze various institutional alternatives for the utilization of a limited set of resources. RRPM 1.6 may also provide a useful point of departure for those institutions wishing to adapt a cost simulation model to their own specific institutional needs.

RRPM 1.6 generates information necessary for the preparation of instructional program budgets. Institutional data, either historical or projected, may be put into the model. The model then calculates the program cost information and implied resource requirements to undertake any given series of programs.

RRPM 1.6 generates four different types of reports, any or all of which may be requested by the user. These include: (1) organizational unit reports providing line-item budgets for various organizational units within the institution, (2) program budget reports indicating the discipline or department contributions to various instructional programs, (3) institutional summary reports, and (4) formatted display reports that show all parameter data for the institution.

The RRPM 1.6 programs have been written in ANS COBOL and are designed for use on systems having the ANS COBOL compiler and a minimum of 50K bytes of core storage.

WARRANTY

The user is referred to the RRPM 1.6 System Documentation for a detailed description of the computer programs and their limitations. NCHEMS has released these programs as Type IA software. A complete description of a Type I program product is contained in the warranty section of the RRPM 1.6 System Documentation.

NCHEMS certifies that the RRPM 1.6 programs meet conventional ANS COBOL programming standards and will meet the performance characteristics indicated in the RRPM 1.6 System Documentation. If such is not the case, NCHEMS will make appropriate program modifications and distribute such changes to institutions that have earlier versions. NCHEMS will assume no responsibility for other modifications of RRPM 1.6 programs.

Users of RRPM 1.6 should understand that the large amount of flexibility afforded institutions in selecting such conventions as cost allocation procedures, student and faculty definitions, and levels of aggregation make interinstitutional RRPM output comparisons difficult. Only if very careful attention is given by all cooperating campuses to the use of standard definitions and other conventions can output comparisons be made.

ACKNOWLEDGMENTS

Development of the Resource Requirements Prediction Model (RRPM) at the National Center for Higher Education Management Systems has been a long and arduous process. Many experimental prototypes were developed along the way; many concepts were tried and evaluated. The latest RRPM version, as described in this document, has resulted from the work and contributions of many people over the past several years. While NCHEMS feels that RRPM 1.6 represents a significant improvement over past cost simulation models, it should be clearly understood that the NCHEMS staff who developed this model could not have been successful without other individuals' work which served as a point of departure.

The original conceptualization that has served as a basis for all RRPM development NCHEMS was contributed by Dr. George Weathersby, formerly of the Office of Analytical Studies at the University of California. Earlier versions of RRPM were developed under the leadership of NCHEMS staff members Dr. Warren Gulko and Mr. James Martin. Eight participating NCHEMS institutions served as official pilot test sites for earlier prototypes, and staff from those pilot institutions contributed significantly to the art and science of resource requirements simulation modeling in higher education. Another forerunner of RRPM 1.6 was the Cost Estimation Model (CEM) developed by the NCHEMS staff and Mr. Colby Springer of Systems Research, Inc. in Los Angeles.

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THE RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

The Resource Requirements Prediction Model (RRPM) 1.6 is an instructional cost simulation model for postsecondary institutions. RRPM 1.6 is intended to be NCHEMS's primary cost simulation model for institutional use. The model has been designed for use in all types of postsecondary institutions including community colleges, vocational schools, and large and small four-year institutions with or without major research activities. It may be seen as an evolutionary model that has grown out of institutional experiences with previous NCHEMS products, specifically RRPM 1.3 and the Cost Estimation Model (CEM).

The experience gained over the past two years with cost simulation models has pointed the way for further refinements that has made RRPM 1.6 a more flexible and usable analytic tool. It is important to note that, while it is an evolutionary product, RRPM 1.6 does not negate an institutions's past experience in the area of cost simulation. Almost all of the data that have been collected for either the Resource Requirements Prediction Model 1.3 or the Cost Estimation Model can be readily used with RRPM 1.6. This model combines many positive aspects of RRPM 1.3 and CEM while avoiding some of the difficult problems that each of those models presented institutional users. RRPM 1.6 will supplant both RRPM 1.3 and CEM.

I. PURPOSE

The concepts of cost simulation in higher education have received considerable attention over the past two years. One of the primary purposes of RRPM 1.6 is to generate information necessary for the preparation of instructional program budgets. Institutional data, either historical or projected, may be put into the model. RRPM 1.6 calculates the program cost information and implied resource requirements to undertake a given series of programs.

Another purpose of RRPM 1.6 is to provide institutions with a flexible tool with which to analyze various institutional alternatives for utilization of a limited set of resources. The model has been designed as a long-range planning tool to aid higher-level management in rapidly determining resource implications of different policy and planning changes. Employing the model in this experimental mode, the user may ask a series of "what if" questions related to admissions policies, implications of curriculum changes, and operational parameter sensitivity analysis.

Also for those institutions with the analytical and programming capability, RRPM 1.6 provides a point of departure for their own modeling efforts. It is hoped that RRPM 1.6 is sufficiently flexible to permit adaptation to specific institutional requirements without modification of the computer programs. However, in some cases institutions will want to change the format of reports or other items. Toward this end, the model has been constructed in a modular manner that makes modification of reports, etc., relatively convenient.

II. OVERVIEW OF THE RRPM 1.6 PROGRAM LOGIC

The reader wi[illegible]l to refer to the RRPM 1.6 flow chart on pages 37 to 39 [illegible]ds the following section.

The logic flow of RRPM 1.6 may be appropriately divided into six phases:

1. Institutional definitions
2. Induced Course Load Matrix (ICLM) specification
3. Calculation of full-time-equivalent (FTE) instructional faculty and salaries
4. Calculation of discipline costs other than faculty salaries
5. Calculation of costs other than general academic instruction
6. Preparation of organizational reports, program budget and planning parameter reports, and summary report.

Note that a series of circled numbers is shown on the RRPM 1.6 flow chart These numbers indicate data that must be provided by the user in order to run the model. On the following pages, each of those user inputs and its relationship to the model's calculations will be discussed.

Phase I

(1) Definitions

When using RRPM 1.6, the institution may provide several definitions. The definitions given will appear on the output reports that the model generates. If no definitions are given, the model will insert a series of identifiers in their place. The seven definitions that may be provided are:

1. Organizational Levels
   (Up to 3; e.g., discipline, department, school)

2. Course Levels
(Up to 7; e.g., freshman, sophomore, junior, senior, graduate I, graduate II, other)

3. Student Levels
(Up to 7; e.g., freshman, sophomore, junior, senior, graduate I, graduate II, other)

4. Instruction Types
(Up to 5; e.g., lecture, discussion, laboratory, independent study, other)

5. Faculty Ranks
(Up to 6; e.g., professor, associate professor, assistant professor, instructor, teaching assistant, other)

6. Staff Categories
(Up to 4; e.g., administrative assistant, secretary, student help, other)

7. Other Expense Types
(Up to 7; e.g., equipment, supplies, travel, printing, telephone, rentals, miscellaneous)

The exact procedure for establishing the definitions is contained in the input sheets for RRPM 1.6.

(2) Field of Study Titles

Once the definitions have been completed, the fields of study and their titles, which the model will display in its reports, must be specified. A field of study may be a degree program, vocational

program, field of interest, or any group of students who might logically be viewed as a homogeneous group for the purposes of analysis.

Example:

Field of Study Titles

History Degree Program
Vocational Welding Program
Nondegree Evening Students
Undeclared

(3) Discipline Titles (Organizational Level 1)

Titles must be given for the teaching departments or disciplines that will be used in the model. The disciplines (or departments) chosen are the cost centers that become the basis for calculating the unit cost (e.g., cost per credit hour) and the average cost per student.

Example:

Discipline Titles

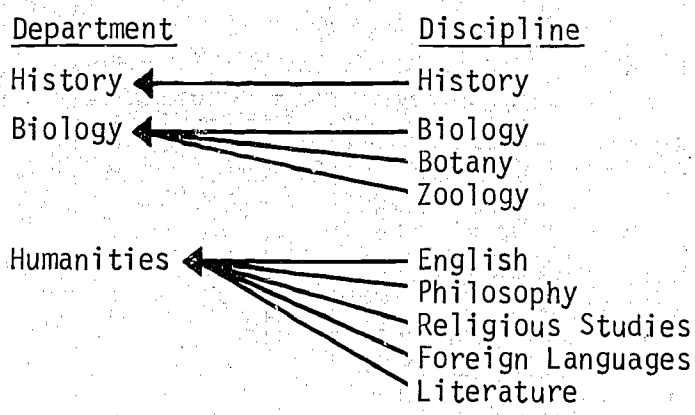
History
Biology
Auto Mechanics
Evening Extension
Senior Seminar

(4) Department Titles (Organizational Level 2)

Data from teaching departments or disciplines may be aggregated within the model during the preparation of reports. Typically, the Organizational Level 2 input form is used to specify how disciplines are to be aggregated into departments or how departments are to be aggregated into divisions.

Example:

Department Titles

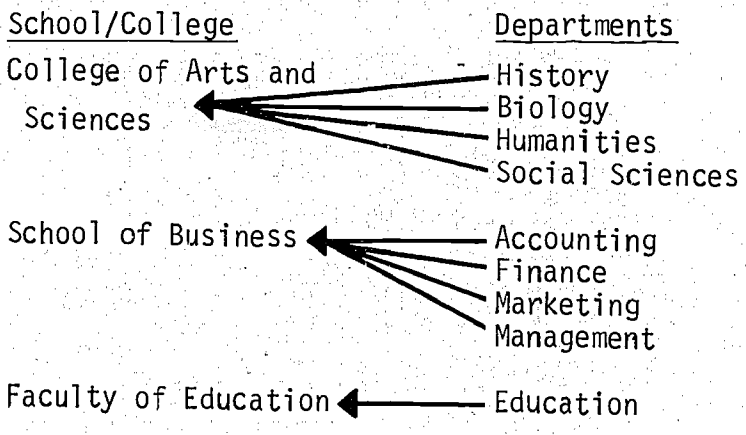


(5) School/College Titles (Organizational Level 3)

Just as disciplines may be aggregated into departments, so departments may be combined into schools or colleges. The title of each school or college is stated, and the departments that comprise that school or college are specified through this input.

Example:

School/College Titles



Phase II

Once the organizational characteristics of the institution have been defined and all the needed titles have been specified, a series of relationships between programs and teaching departments or disciplines must be established. That is, after the organizational units have been identified, it is necessary to determine how those organizational units provide instructional services to students in different programs. This relationship may be stated in terms of units (e.g., credit hours) taken by students in different programs from the various organizational units providing instruction. The Induced Course Load Matrix specifies those relationships.

(6) ICLM Data (Average Student Credit Hour Load by Field of Study, by Student Level, by Discipline, by Course Level)

The relationships between programs and instructional disciplines are established through the use of an Induced Course Load Matrix (ICLM). In its simplest form the ICLM indicates the average number of units (e.g., credit hours) taken by a typical student in each field of study (program) from each discipline or department.

Example:

ICLM for Lower Division History Students

Discipline and Course Level	Average Semester Hours Taken Annually
Lower Division History	11.8
Upper Division History	4.2
Lower Division Biology	3.9
Lower Division Fine Arts	3.7
Lower Division Business	6.4
	30.0

The institution must provide the model with the ICLM data for each field of study, each student level, each discipline, and each course level. The ICLM for a hypothetical institution is shown on page 9. While the credit hour is the most common unit of measure, such other measures as contact hours, courses, or subjects may be used. The unit chosen will depend upon what is deemed appropriate by the institution and upon data availability.

(7) Enrollment by Field of Study and by Student Level

Once the Induced Course Load Matrix has been defined, it is necessary to specify the total number of students in each program (field of study). These enrollments are input to the model.

Example:

Enrollments

Field of Study	Enrollment
Lower Division History	143
Upper Division History	186
Graduate Division History	52

The enrollments for each field of study at each student level are multiplied down through the columns of the Induced Course Load Matrix, resulting in an Instructional Work Load Matrix (IWLM) as shown on page 11. The IWLM indicates the total number of credit hours taken by all students in each field of study from each instructional department or discipline.

TABLE 1

INDUCED COURSE LOAD MATRIX*

(Semester Hours)

FIELD OF STUDY BY STUDENT LEVEL

INSTRUCTIONAL DISCIPLINE BY COURSE LEVEL		History			Biology			Fine Arts			Business		
		LD	UD	GD	LD	UD	GD	LD	UD	GD	LD	UD	GD
History	LD	11.8			6.7	4.5		6.0	4.3		4.6	1.9	
	UD	4.2	11.3	4.5		3.9	2.1	2.3	7.6	7.4	2.3	6.1	4.7
	GD			18.3									
Biology	LD	3.9	4.1		12.5			4.2	4.1	1.3	5.4		
	UD				5.8	13.7			2.0			4.0	2.8
	GD					2.1	20.4						
Fine Arts	LD	3.7	2.7		2.7	1.8		10.9			.6	3.5	
	UD		6.5	3.0		3.5	2.9	6.3	10.3			1.4	1.3
	GD									19.3			
Business	LD	6.4	2.8		2.3	.5		.3	1.7		12.8	1.1	
	UD		2.6	4.2			4.6			2.0	4.3	10.3	
	GD											1.7	21.2
Total Annual Semester Hour Load		30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0

*FTE student load equals 30.0 annual semester hours.

) = Lower Division UD = Upper Division GD = Graduate Division

Example:

IWLM for Lower Division History Students

Discipline & Course Level	Average Credit Hours Taken (From ICLM)		Enrollment		Total Credit Hours Taken (From IWLM)
L.D. History	11.8	x	143	=	1,687
U.D. History	4.2	x	143	=	601
L.D. Biology	3.9	x	143	=	558
L.D. Fine Arts	3.7	x	143	=	529
L.D. Business	6.4	x	143	=	915
All Courses	30.0	x	143	=	4,290

When the numbers in each row of the IWLM are summed, the result is the total number of credit hours that an instructional discipline or department must provide in order to meet the needs of students from all fields of study. Hence, given the enrollment mix shown at the top of the IWLM on page 11, the history department would need to generate 4,912 credit hours of lower division instruction, 6,438 credit hours of upper division instruction, and 952 credit hours of graduate level instruction.

Phase III

The credit hour demand placed on each department, given a mix of students and their typical course demands, has now been defined. The remainder of the calculations deal with how those credit hour demands are to be met.

The model calculates the number of full-time-equivalent (FTE) faculty and their associated salaries for each instructional discipline (or department)

TABLE 2

INSTRUCTIONAL WORK LOAD MATRIX

(Semester Hours)

MAJOR BY STUDENT LEVEL

FTE ENROLLMENTS

		143	186	52	121	94	45	85	61	17	180	206	124	
		History			Biology			Fine Arts			Business			
INSTRUCTIONAL DISCIPLINES BY INSTRUCTION LEVEL		LD	UD	GD	LD	UD	GD	LD	UD	GD	LD	UD	GD	TOTAL
History	LD	1,687			811	423		510	262		828	391		4,912
	UD	601	2,102	234		367	95	195	464	126	414	1,257	583	6,438
	GD			952										952
Biology	LD	558	763		1,512			357	257	22	972			4,435
	UD				702	1,288			122			824	347	3,283
	GD					197	918							1,115
Fine Arts	LD	529	502		327	169		926			108	721		3,283
	UD		1,208	156		329	130	536	628			288	161	3,436
	GD									328				328
Business	LD	915	521		278	47		26	103		2,304	227		4,421
	UD		484	218			207			34	774	2,122		3,839
	GD											350	2,629	2,979
Total Annual Semester Hour		4,290	5,580	1,560	3,630	2,820	1,350	2,550	1,830	510	5,400	6,180	3,720	39,420

at each course level. There are two methods of determining the number of faculty required. The first involves the use of a "productivity ratio" that is the average number of credit hours produced by each FTE faculty member teaching at a course level within a discipline. This approach is referred to as the "short method." Alternatively, the institution may provide data on a number of institutional parameters--including average section size by instruction type, the number of contact hours by type of instruction, and average faculty work load by instruction type--and approach the calculation of FTE faculty and their salary dollars by a longer method. This long method requires considerably more data and effort but provides information on the number of faculty required by instruction type at a level of detail not attained through use of the short method. Inputs (8) and (9) are used for the short method of calculating FTE faculty requirements. Input (10), Faculty Salary Schedule by Discipline, is used for both the long and short methods. Inputs (11) through (16) are used for the long method only.

(8) Productivity Ratio - Credit Hours to FTE Faculty by Discipline, by Course Level (Short Method Only)

When using the short method for the calculation of FTE teaching faculty, the user must provide a series of productivity ratios that state the number of credit hours produced by an FTE faculty teaching exclusively at one level of instruction.

Example:

Productivity Ratios (Credit Hours/FTE Faculty)

Discipline	Lower Division	Upper Division	Graduate Division
History	359	277	162
Botany	200	155	77
Elementary Education	326	311	190

The number of FTE faculty required at each level of instruction is determined by dividing the productivity ratio for a given course level of a specific discipline into the total number of credit hours to be produced in the corresponding discipline at that level.

Example:

Calculation of FTE Faculty for Lower Division History

$$\frac{\text{4,912 Student Credit Hours}}{\text{359 Student Credit Hours/FTE Faculty}} = 13.66 \text{ FTE Faculty}$$

(9) Faculty Rank Distribution by Discipline, by Course Level (Short Method Only)

This input specifies the rank mix of the faculty who will teach at each course level.

Example:

Faculty Rank Distribution for Lower Division History Discipline

Rank	Faculty Rank Distribution		FTE Faculty		Faculty by Rank
Professors	.10	x	13.66	=	1.37
Assoc. Professors	.20	x	13.66	=	2.73
Ass't. Professors	.30	x	13.66	=	4.10
Instructors	.20	x	13.66	=	2.73
Teaching Ass'ts.	.20	x	13.66	=	2.73
	1.00				13.66

(10) Faculty Salary Schedule by Discipline, by Rank (Both Short and Long Methods)

Having determined the number of faculty in each rank at each course level in each discipline, the model requires that faculty salary schedules be input for each discipline.

Example:

Faculty Salary Schedule for History Discipline
(All Course Levels)

Professors	$17,000
Associate Professors	$14,500
Assistant Professors	$11,500
Instructors	$ 9,500
Teaching Assistants	$ 6,800

The number of faculty at each rank is multiplied by the corresponding salary. Thus, the model calculates, by course level, and rank, the total FTE instructional faculty and their salaries.

If the long method is chosen for the calculation of FTE faculty required within each discipline, the model calculates the same Instructional Work Load Matrix used for the short method. Rather than specifying a productivity ratio, the user must gather and input other data that begin with Input (11).

(11) Ratio of Student Contact Hours (SCTH)
to Student Credit Hours (SCH)
by Discipline, by Course Level (Long Method Only)

This ratio establishes the relationship between the number of hours students spend in the classroom (SCTH) and the number of credit hours (SCH) they receive. Some disciplines will have a ratio of one SCTH to one SCH, while others will have "noncredit" labs or discussions, in which case the ratio will be greater than one.

Example:

Ratio SCTH to SCH

Discipline and Course Level	Total SCTH		Total SCH		Ratio SCTH/SCH
Lower Division History	4,912	÷	4,912	=	1.00
Lower Division Biology	7,406	÷	4,435	=	1.67

The next two inputs provide the basis for determining the total number of class meetings required within each discipline at each course level by instruction type.

(12) Distribution of Student Contact Hours by Discipline, by Course Level, by Instruction Type (Long Method Only)

The total number of student contact hours (SCTH) by discipline, by course level, must be distributed across the different instruction types.

Example:

Distribution of SCTH By Instruction Type

Discipline, Course Level, and Instruction Type	Contact Hours By Instruction Type		Total Discipline Contact Hours		Distribution of Contact Hours
Lower Division History - Lecture	4,912	÷	4,912	=	1.00
Lower Division Biology - Lecture	4,435	÷	7,406	=	.60
Lower Division Biology - Lab	2,971	÷	7,406	=	.40

(13) Section Size by Discipline, by Course Level, by Instruction Type (Long Method Only)

Having determined the total number of SCTH that must be generated for each discipline at each course level by instruction type, one can determine the total number of class meetings (CMTG) by dividing the average section size (by discipline, by course level, by instruction type) into the corresponding SCTH figures.

Example:

Calculation of CMTG by Instruction Type

Discipline Course Level, and Instruction Type	Total SCTH by Instruction Type		Average Section Size by Instruction Type		CMTG by Instruction Type*
Lower Division History - Lecture	4,912	÷	40	=	123
Lower Division Biology - Lecture	4,435	÷	60	=	74
Lower Division Biology Lab	2,971	÷	20	=	149

*Rounded to nearest integer

(14) Ratio of Faculty Contact Hours (FCTH) to Class Meetings (CMTG) by Discipline, by Course Level, by Instruction Type (Long Method Only)

The next step is to calculate the total number of faculty contact hours (FCTH) required in order to meet the instructional needs of the disciplines. The ratio of class meetings to FCTH (by discipline, by course level, by instruction type) adjusts for those class situations where there may be team teaching or where the faculty member is not meeting with the class at all times.

Example:

Calculation of Total FCTH Requirements

Discipline Course Level, and Instruction Type	CMTG by Instruction Type		Ratio FCTH/CMTG by Instruction Type		Total FCTH by Instruction Type
Lower Division History - Lecture	123	x	1.00	=	123
Lower Division Biology - Lecture	74	x	1.00	=	74
Lower Division Biology - Lab	149	x	2.00	=	298

(15) Faculty Work Load by Discipline, by Course Level, by Instruction Type (Long Method Only)

Once the total faculty contact hour requirements are known, the typical FTE faculty work load, stated in faculty contact hours (FCTH), must be specified for each type of instruction at each course level. The total FTE faculty by discipline, by course level, and by instruction type is then calculated.

Example:

Calculation of FTE Faculty

Discipline Course Level, and Instruction Type	Total FCTH by Instruction Type		FTE Faculty Work Load (FCTH)	FTE Faculty
Lower Division History - Lecture	123	÷	9	13.66
Lower Division Biology - Lecture	74	÷	9	8.22
Lower Division Biology - Lab	298	÷	15	19.94

(16) Discipline Faculty Rank Distribution by Discipline, by Course Level, by Instruction Type (Long Method Only)

Finally, the distribution of teaching faculty for each type of instruction at each course level within each discipline must be indicated.

Example:

Discipline Faculty Rank Distribution

	Faculty Rank Distribution		Total Faculty		Faculty by Rank
Lower Division History					
Lecture					
Professors	.10	x	13.66	=	1.37
Associate Professors	.20	x	13.66	=	2.73
Assistant Professors	.30	x	13.66	=	4.10
Instructors	.20	x	13.66	=	2.73
Teaching Assistants	.20	x	13.66	=	2.73
	1.00				13.66
Lower Division Biology					
Lecture					
Professors	.20	x	8.22	=	1.64
Associate Professors	.30	x	8.22	=	2.47
Assistant Professors	.30	x	8.22	=	2.47
Instructors	.20	x	8.22	=	1.64
	1.00				8.22
Lab					
Teaching Assistants	1.00	x	19.94	=	19.94

Given all of the data specified in Inputs (11) through (16), FTE faculty (by discipline, by course level, by instruction type, by rank) will be calculated. The same faculty salary schedule (for

all course levels) used in the short method is used to determine the total salaries by discipline, by course level, and by rank in the long method.

It is important to note once again the difference between the long and the short methods of calculating FTE faculty and faculty costs. Clearly, the data required for the short method are considerably less difficult to obtain. However, the user does not have the ability to test directly the sensitivity of certain parameters (e.g., class size and faculty work load).
The determination of FTE faculty, their rank distribution, and their associated salaries has now been completed.

Phase IV

The model calculates direct instructional costs other than teaching faculty salaries. All non-teaching-faculty costs are collected for the discipline as a whole and are then allocated to each of the course levels on the basis of faculty salaries, or FTE faculty, or student credit hours (SCH), or a specific course level designation.

Example:

Biology Discipline Expenses and Allocation

Expense Type	Allocation Basis
Chairman's Salary	FTE Faculty
Supplies	Student Credit Hours
Travel	Faculty Salaries
Lower Division Lab Supplies	Specific to Lower Division

(10) FTE Chairman and Chairman Salary

For purposes of calculation of teaching faculty costs, the department chairman category is used to display the chairman's administrative costs. The user must specify whether there is a chairman within the discipline and his salary. This is done through the use of Input Form (10) in which the faculty salary schedule for the discipline was identified. If a department chairman is teaching classes in addition to his regular duties as chairman, his FTE assignment as chairman is correspondingly reduced.

Example:

History Discipline Chairman

FTE Chairman	=	.5
Annual Salary	=	$20,000
Chairman's Salary	=	$10,000

Allocate to Course Levels by FTE Faculty

(17) FTE Staff by Discipline, by Category

The number of staff by category is input together with the average salary for each category. The number of staff may be input as a constant, and/or as a function of FTE faculty, and/or credit hours, and/or FTE chairman.

Example:

Calculation of Discipline FTE Staff (all course levels)

History Discipline Secretaries

(.2 x 30 FTE Faculty) + (1.0 x 1.0 FTE Chairman)
= 7.0 Secretaries

Secretary Salary Rate	=	$ 5,000
Secretary Salaries (7)	=	$35,000

Allocate to Course Levels by FTE Faculty

(18) "Other" Expense by Discipline, by Type (all course levels)

Estimating equations are used for other expenses of each instructional discipline. Such expenditures may be input as a constant, and/or as a function of total faculty, and/or total support staff, and/or FTE chairman, and/or student credit hours, and/or total faculty salaries, and/or total staff salaries.

Example:

Calculation of "Other" Discipline Expense

History Discipline Instructional Supplies

$2,000 + ($.50 x 6,000 SCH) + ($50.00 x 30 FTE Faculty)
= $6,500.00

Allocate to Course Levels by FTE Faculty

Biology Discipline Instructional Supplies

$10,000 + ($2.00 x 4,000 SCH) = $18,000

Allocate to Course Levels by Student Credit Hours

As noted above, the costs associated with Inputs (10), (17), and (18) are allocated to each course level on the basis of faculty salaries, or FTE faculty, or student credit hours (SCH), or a specific course level designation.

(19) Allocation of Costs Other Than General Academic Instruction by Discipline, by Course Level

The user may wish to allocate costs other than direct instructional costs to specific discipline and course level cost centers. This may be done through the use of Input (19). The model does not determine the amount of such allocations. That must be done external to the model.

Example:

Allocation of Support Costs

$20,000 of Library Operating Expenditure to Graduate Division History

$10,000 of Science Supply Store Operating Expenditures to Upper Division Biology

This completes the collection of direct instructional cost data for each discipline by course level.

Phase V

Having determined the total cost of producing a certain number of credit hours in a given discipline at a given course level, the model calculates the cost per student credit hour (SCH) by dividing the total number of credit hours produced into a given discipline cost center. If the long method was taken, the cost per student contact hour (SCTH) is also calculated.

Example:

Calculation of Unit Costs

Lower Division History

$$\text{Cost Per SCH} = \frac{\$103,201}{4,912 \text{ SCH}} = \$21.01$$

$$\text{Cost Per SCTH} = \frac{\$103,201}{4,912 \text{ SCTH}} = \$21.01$$

Lower Division Biology

$$\text{Cost Per SCH} = \frac{\$149,415}{4,435 \text{ SCH}} = \$33.69$$

$$\text{Cost Per SCTH} = \frac{\$149,415}{7,406 \text{ SCTH}} = \$19.63$$

Up to this point, all the cost information has dealt solely with the operations of a specific organizational unit, typically a discipline or department. That information provides the beginning point for calculating the cost per student by level of student in various programs.

Recall the Induced Course Load Matrix shown on page 9. The ICLM describes for each program the average number of credit hours taken by a typical student, at a given student level, from each discipline, at each course level. The average direct instructional cost per student may be calculated by summing the number of credit hours a student takes in each discipline, at each course level, multiplied by the cost per credit hour in the respective instructional disciplines at each course level.

Example:

Calculation of Average Annual Cost Per Lower Division History Student

Discipline & Course Level	ICLM for Avg. L.D. History Major in Semester Credit Hrs.		Cost Per Credit Hour		Total Discipline Contribution
Lower Division History	11.8	x	$21.01	=	$247.92
Upper Division History	4.2	x	$37.20	=	$156.24
Lower Division Biology	3.9	x	$33.69	=	$131.39
Lower Division Fine Arts	3.7	x	$34.71	=	$128.43
Lower Division Business	6.4	x	$20.90	=	$133.76
			Average Annual Cost Per Student -		$797.74

The total costs of a program are calculated by multiplying the number of students times the average cost per student.

Example:

Calculation of History Program Costs

	Student Enrollments		Average Annual Cost Per Student		Total Direct Instructional Cost
Lower Division	143	x	$ 798	=	$114,114
Upper Division	186	x	$1,113	=	$207,018
Graduate Division	52	x	$1,711	=	$ 88,972
					$410,104

(20) Estimating Equations for Costs Other Than General Academic Instruction

RRPM 1.6 uses a series of estimating equations for costs other than general academic instruction. These may correspond to research, public service, and the various support activities of the NCHEMS Program Classification Structure (Gulko, 1972). However, the model will accept any series of definitions and estimating equations that conform to specific institutional needs. The costs associated with activities other than direct instruction may be input as a constant and/or as a function of enrollment, and/or student credit hours, and/or FTE faculty, and/or FTE staff, and/or total faculty salaries, and/or total staff salaries, and/or total instructional budget. Up to 9,889 estimating equations may be used.

Example:

Support Costs

Libraries Budget = $ 52,000 + ($2.00 x Student Credit Hours) + ($100 x FTE Faculty)

Audio/Visual Services Budget = $ 36,000 + ($3.00 x Enrollment) + ($10.000 x FTE Faculty)

Executive Management = $171,000

Phase VI

RRPM 1.6 generates four different types of reports, any or all of which may be requested by the user. The first type is a series of organizational unit reports that provide line-item budgets detailing the personnel and dollar requirements for various organizational units within the institution. The three levels of aggregation that might typically be chosen for the organizational unit reports are (1) discipline, (2) department, and (3) school/college. However, the level of aggregation is defined by the user and may be tailored to institutional needs.

This report also provides planning parameter information for the lowest organizational unit. Information on such parameters as productivity ratios, total credit hour production, cost per credit hour, faculty rank distribution, faculty salaries by rank, FTE staff and staff salaries, etc., is displayed.

The second series of reports shows program budgets for the institution. The reports indicate the number of students enrolled in each program, the cost per student, and the total cost of each program.

The third report is a summary for the institution as a whole. It displays a breakdown of expenditures by institutional activity; e.g., general academic instruction, research, libraries. This list of activities may correspond to the NCHEMS Program Classification Structure, or it may be adapted by the user to replicate the institution's own chart-of-accounts cost centers.

The fourth report is not intended for general display. It is a formatted display of all parameter data on the file for a given simulation.

III. INDUCED COURSE LOAD MATRIX DEVELOPMENT

The Induced Course Load Matrix (ICLM) is one of the cornerstone concepts for instructional cost simulation, for it defines the relationships between programs and instructional disciplines or departments. When using RRPM 1.6 an institution must define the ICLM as an initial step in the implementation process. An institution will normally build an historical ICLM that reflects the course consumption patterns for the given budgetary period that the institution is seeking to have the model replicate. Once that historical ICLM has been developed, it may be used as a point of departure for predicting future resource requirements of different alternatives and under different assumptions.

To build an historical ICLM, the institution must first prepare an historical Instructional Work Load Matrix (IWLM). This is done by analyzing student registration records for a specific period of time, counting the number of credit hours (units) taken by each student in each program at each student level, from each instructional discipline or department at each course level. Going back to the IWLM shown on page 11, one can determine through analysis of the student records for the 143 FTE lower division history majors that those students took a total of 1,687 credit hours of lower division history, 601 credit hours of upper division history, 558 credit hours of lower division biology, 529 credit hours of lower division fine arts, 915 credit hours of lower division business.

Once the historical IWLM has been built, the total number of credit hours taken by all students in each program is divided by the respective enrollments in those programs. This gives the historical Induced Course Load Matrix. If the enrollments shown at the top of the IWLM on page 11 were divided through the columns of that matrix, the result would be the ICLM shown on page 9.

A series of generalized computer programs has been written to assist institutions in preparing an ICLM. These programs are available from the National Center for Higher Education Management Systems.

Building an ICLM requires a number of important considerations. If historical program cost information is desired, the ICLM used may be quite different from one that is used for projective purposes. Some specific considerations include:

- Defining programs (e.g., student major, degree program, field of study, curricular path)
- Defining the instructional unit (e.g, course, discipline, department, division)
- Defining student levels (e.g., lower division, upper division, graduate division)
- Defining course levels (e.g., lower division, upper division, graduate division)
- Determining the number of terms to be used for the historical IWLM (e.g., single semester vs. two-semester average)
- Defining the number of students for calculation of the ICLM from the IWLM (e.g., FTE vs. headcount students)

The use to be made of the ICLM will determine, in large measure, how it is to be prepared. Two documents, Induced Course Load Matrix Generator: System Documentation (Haight and Manning, 1972) and Instructional Program Budgeting in Higher Education (Clark and Huff, 1972), discuss ICLM preparation in greater detail.

IV. RRPM 1.6 SOFTWARE DESCRIPTION

NCHEMS has attempted to simplify and reduce the computer requirements for implementation of RRPM 1.6 in comparison to earlier NCHEMS cost simulation models. One of the primary difficulties of RRPM 1.3 was the large computer capacity necessary to implement the model. RRPM 1.6 has been designed for use on computer systems having 50K bytes of core storage. RRPM 1.6 has been written entirely in ANS COBOL, whereas early NCHEMS models required both COBOL and FORTRAN capabilities.

The RRPM 1.6 software is comprised of two basic modules. The first is an edit/update/calculate program that checks the input data for errors in formatting, etc. It gives a series of warning and error messages for such data errors as incomplete data sets, invalid discipline identifiers, incorrrect degree program identifiers, and alpha characters in numeric fields. If no serious errors are detected, calculations are completed as described previously.

The second module is a series of report programs which produce, from the figures generated in the first module, reports requested by the user.

The model may be dimensioned up to the following limits:

Programs or Majors	9,999
Instructional Disciplines	9,999
Student Levels	7
Course Levels	7
Faculty Ranks	6
Staff Categories	4
"Other" Discipline Expense Types	7
Types of Instruction (Long Method Only)	5
Costs Other Than General Academic Instruction	9,889

More specific information about the operating characteristics of the model is contained in the RRPM 1.6 System Documentation.

Two additional systems have been developed at NCHEMS that will aid in implementating RRPM 1.6. The first is an Induced Course Load Matrix Generator (Haight and Manning, 1972) that will prepare an Induced Course Load Matrix from institutional student records. The programs are sufficiently flexible to permit use with almost any machine-readable student record system.

The other available system is the Cost Finding Principles (Ziemer, et al., 1971) software, which will aid institutions in crossing institutional financial information over to the Program Classification Structure. The same software is also used for allocating indirect or support program costs to primary program cost centers, namely those activities involving instruction, research, and public service.

A third set of programs is currently being developed to aid institutions in the preparation of faculty-related input data for the model. This system, the Faculty Data Generator, will be available sometime in mid-1973.

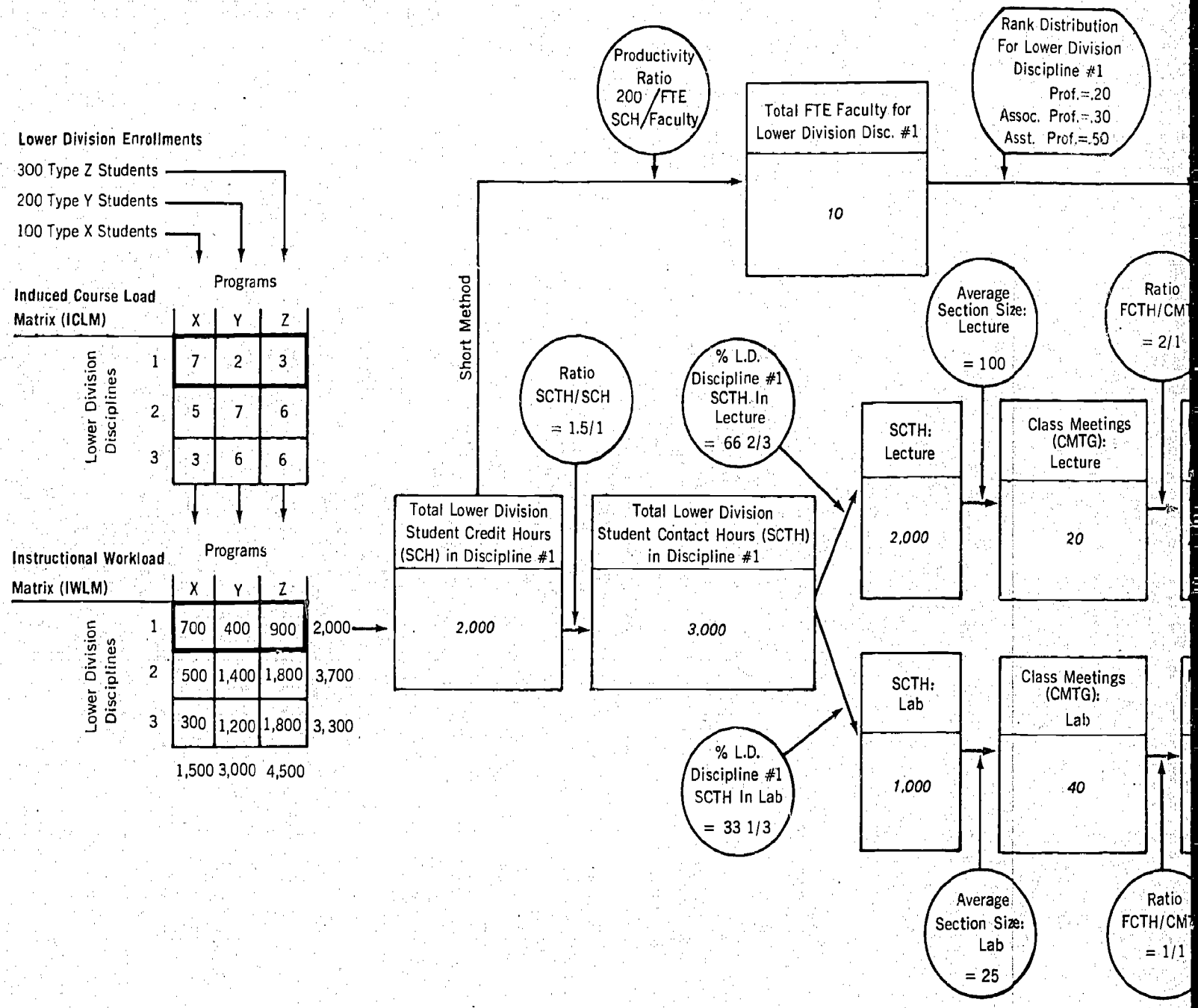
Additional information on these systems may be obtained by writing to the National Center for Higher Education Management Systems.

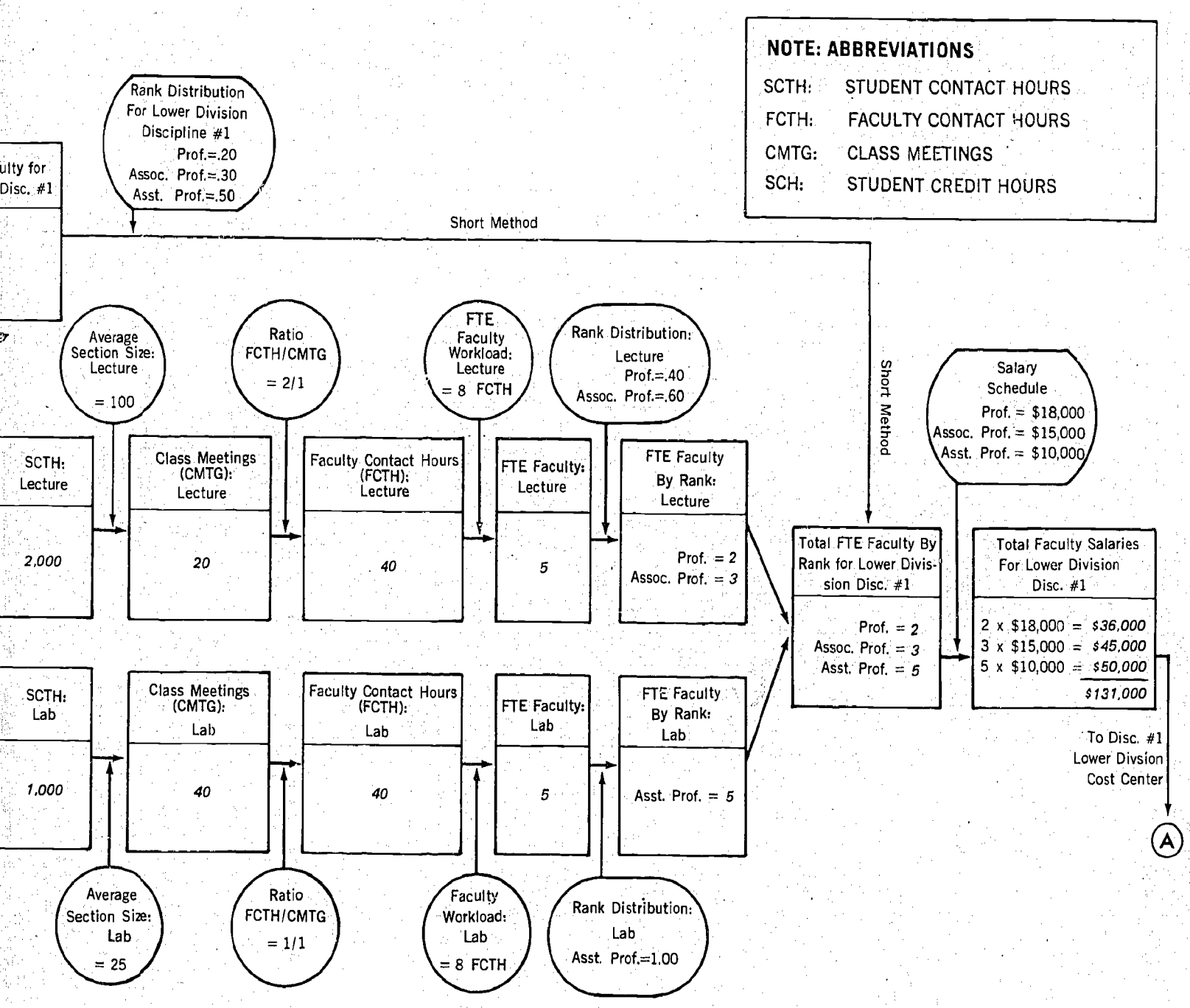
V. RRPM 1.6 COMPUTATIONAL FLOW

Pages 31 and 32 illustrate the computational flow of RRPM 1.6. The example shown is for one course level of a single discipline. Moreover, this example is for lower division students only. In a four-year institutional situation, crossovers would exist where some upper division students would be taking lower division courses, and so forth.

RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

FTE FACULTY AND FACULTY SALARY COMPUTATION



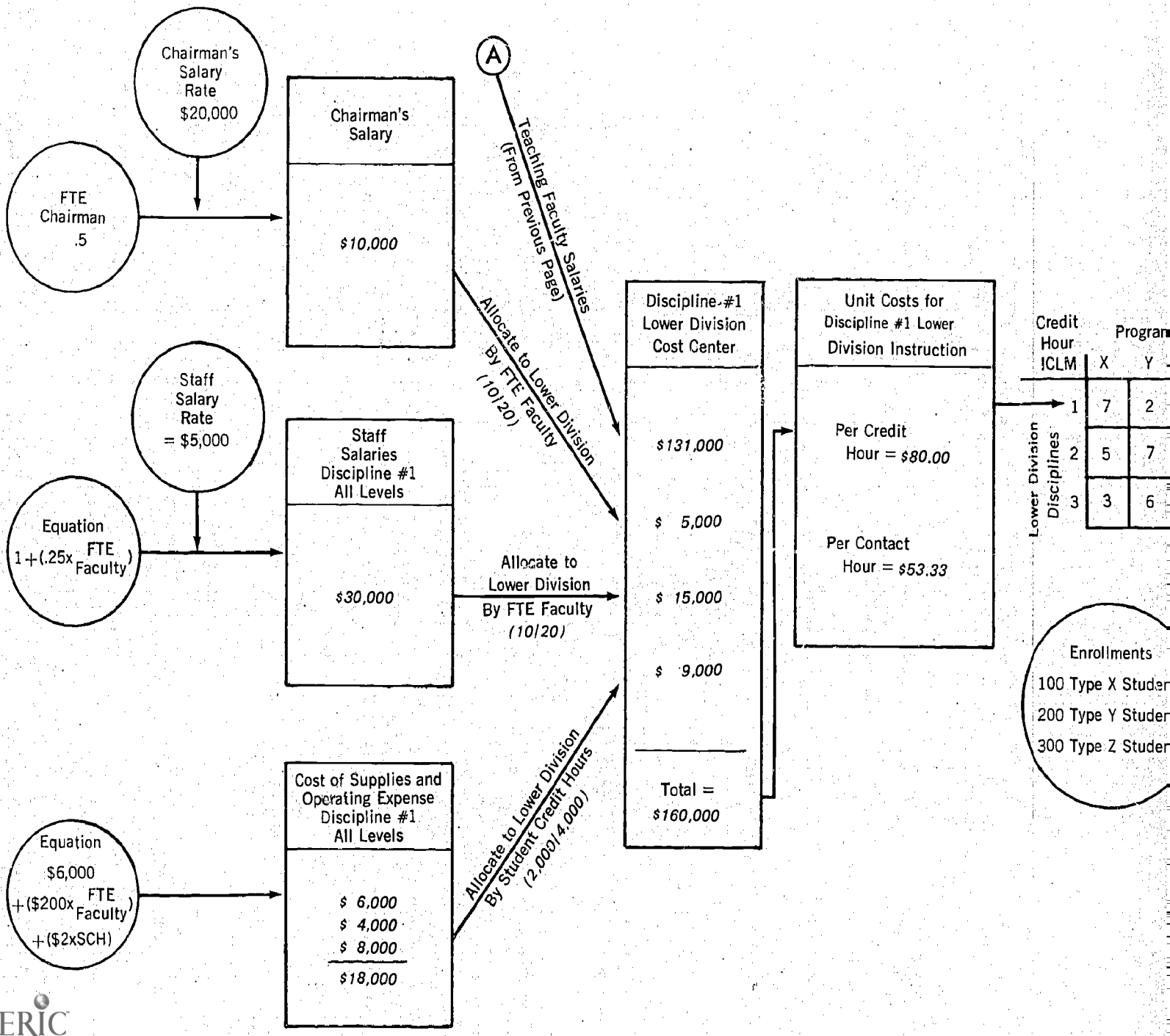

NOTE: ABBREVIATIONS
SCTH: STUDENT CONTACT HOURS
FCTH: FACULTY CONTACT HOURS
CMTG: CLASS MEETINGS
SCH: STUDENT CREDIT HOURS
Rank Distribution For Lower Division Discipline #1
Prof.=.20
Assoc. Prof.=.30
Asst. Prof.=.50
Short Method
Average Section Size: Lecture = 100
Ratio FCTH/CMTG = 2/1
FTE Faculty Workload: Lecture = 8 FCTH
Rank Distribution: Lecture
Prof.=.40
Assoc. Prof.=.60
Salary Schedule
Prof. = $18,000
Assoc. Prof. = $15,000
Asst. Prof. = $10,000
SCTH: Lecture
2,000
Class Meetings (CMTG): Lecture
20
Faculty Contact Hours (FCTH): Lecture
40
FTE Faculty: Lecture
5
FTE Faculty By Rank: Lecture
Prof. = 2
Assoc. Prof. = 3
Total FTE Faculty By Rank for Lower Division Disc. #1
Prof. = 2
Assoc. Prof. = 3
Asst. Prof. = 5
Total Faculty Salaries For Lower Division Disc. #1
2 x $18,000 = $36,000
3 x $15,000 = $45,000
5 x $10,000 = $50,000
$131,000
To Disc. #1 Lower Divsion Cost Center
A
SCTH: Lab
1,000
Class Meetings (CMTG): Lab
40
Faculty Contact Hours (FCTH): Lab
40
FTE Faculty: Lab
5
FTE Faculty By Rank: Lab
Asst. Prof. = 5
Average Section Size: Lab = 25
Ratio FCTH/CMTG = 1/1
Faculty Workload: Lab = 8 FCTH
Rank Distribution: Lab
Asst. Prof.=1.00
Long Method

RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

NON-FACULTY-SALARY COST COMPUTATION

NOTE: TOTALS FOR DISCIPLINE #1 ALL LEVELS

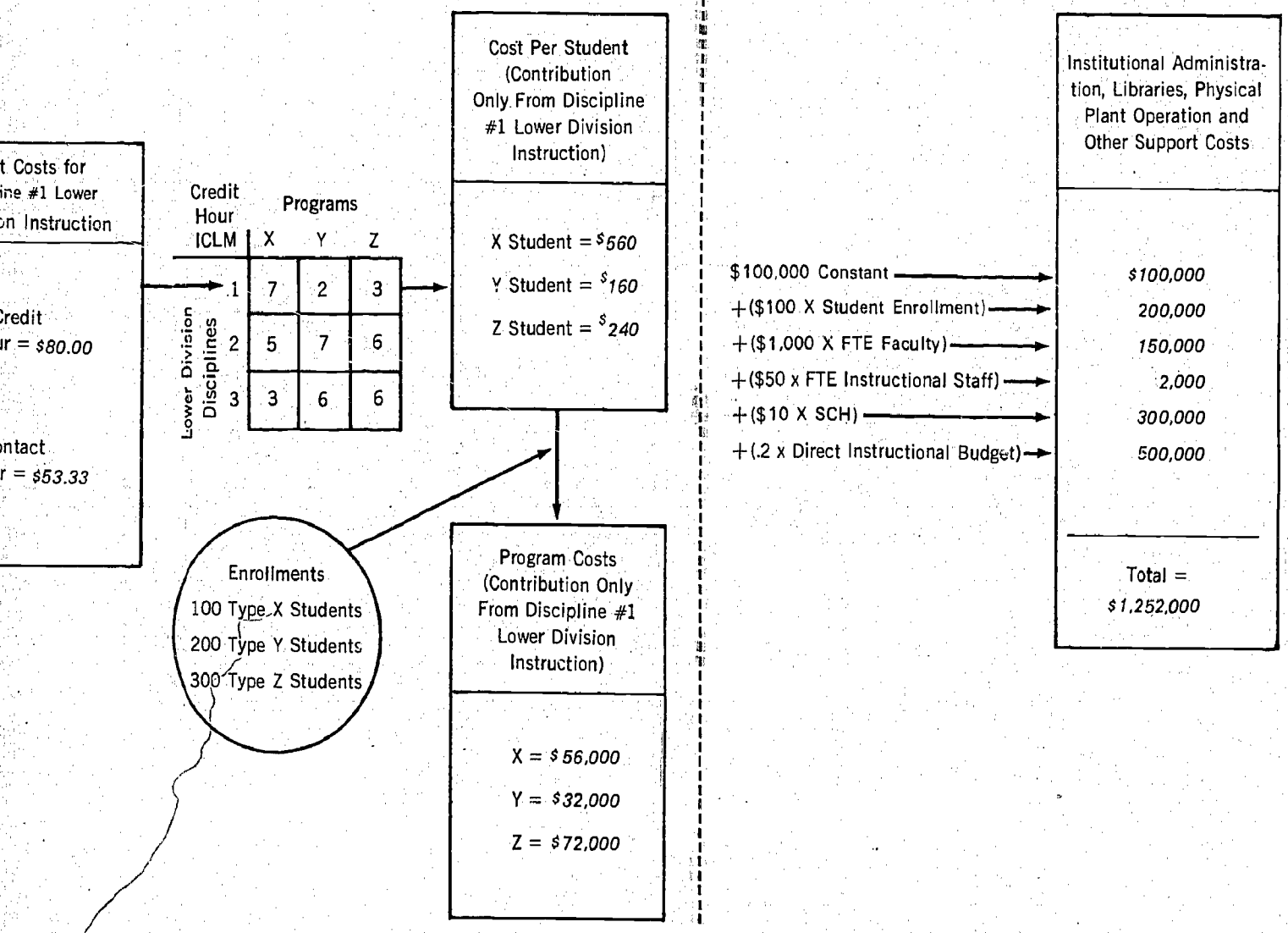
FTE Faculty	20
Total Student Credit Hours (SCH)	4,000



EXAMPLE OF ESTIMATING EQUATION FOR COSTS OTHER THAN GENERAL ACADEMIC INSTRUCTION

NOTE: INSTITUTIONAL TOTALS

Enrollment	= 2,000 Students
FTE Faculty	= 150
FTE Instructional Staff	= 40
Student Credit Hours (SCH)	= 30,000
Direct Instructional Budget	= $2,500,000



INSTITUTIONAL ESTIMATING EQUATION

VI. GLOSSARY OF COMMONLY USED TERMS

Cost Center – A defined activity (such as instruction in a discipline) to which a variety of specifically identifiable costs are attached.

Induced Course Load Matrix (ICLM) - A table defining the relationships between the instructional programs and the teaching disciplines or departments that provide instructional services for those programs. The ICLM displays the average number of credit hours taken at various course levels in each instructional discipline by the typical student in each program at each student level.

Instructional Work Load Matrix (IWLM) - A matrix indicating the total number of credit hours demanded by all students in each program at each student level from each of the instructional disciplines or departments at each course level.

Student Credit Hour (SCH) - A measure of progress toward some academic objective by a student. This may be a semester credit hour, a quarter credit hour, a course unit, or any measure of progress toward an educational objective.

Teaching Faculty - Those FTE faculty or parts of FTE faculty who instruct students in classroom sessions or other organized situations and who perform other tasks in preparation for and in support of academic or vocational instruction.

Class Meeting (CMTG) - One session of a class meeting one hour.

Faculty Contact Hour (FCTH) - One faculty member meeting with a class one hour.

Student Contact Hour (SCTH) - One student in a class meeting one hour.

REFERENCES

Clark, David, and Huff, Robert. Instructional Program Budgeting in Higher Education. Boulder, Colo.: Western Interstate Commission for Higher Education, 1972.

Gulko, Warren W. Program Classification Structure. Boulder, Colo.: Western Interstate Commission for Higher Education, 1972.

Gulko, Warren W., and Hussain, K. M. A Resource Requirements Prediction Model (RRPM-1): An Introduction to the Model. Boulder, Colo.: Western Interstate Commission for Higher Education, 1971.

Haight, Michael, and Manning, Charles. Induced Course Load Matrix Generator: System Documentation. Boulder, Colo.: Western Interstate Commission for Higher Education, 1972.

Huff, Robert A., and Manning, Charles. Higher Education Planning and Management Systems: A Brief Explanation. Boulder, Colo.: Western Interstate Commission for Higher Education, 1972.

Hussain, K. M. A Resource Requirements Prediction Model (RRPM-1): Guide for the Project Manager. Boulder, Colo.: Western Interstate Commission for Higher Education, 1971.

Hussain, K. M., and Martin, James, eds. A Resource Requirements Prediction Model (RRPM-1): Report on the Pilot Studies. Boulder, Colo.: Western Interstate Commission for Higher Education, 1971.

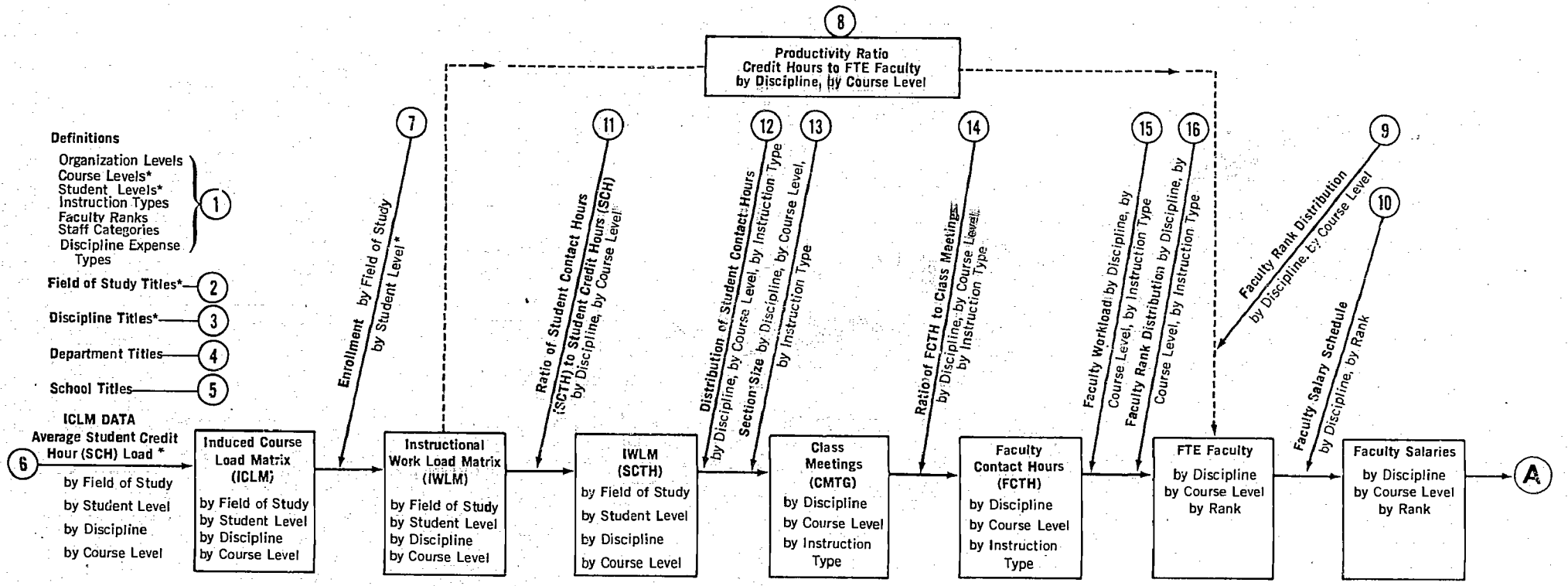
Ziemer, Gordon; Young, Michael; and Topping, James. Cost Finding Principles and Procedures. Boulder, Colo.: Western Interstate Commission for Higher Education, 1971.

APPENDIX I

RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

FLOW CHART

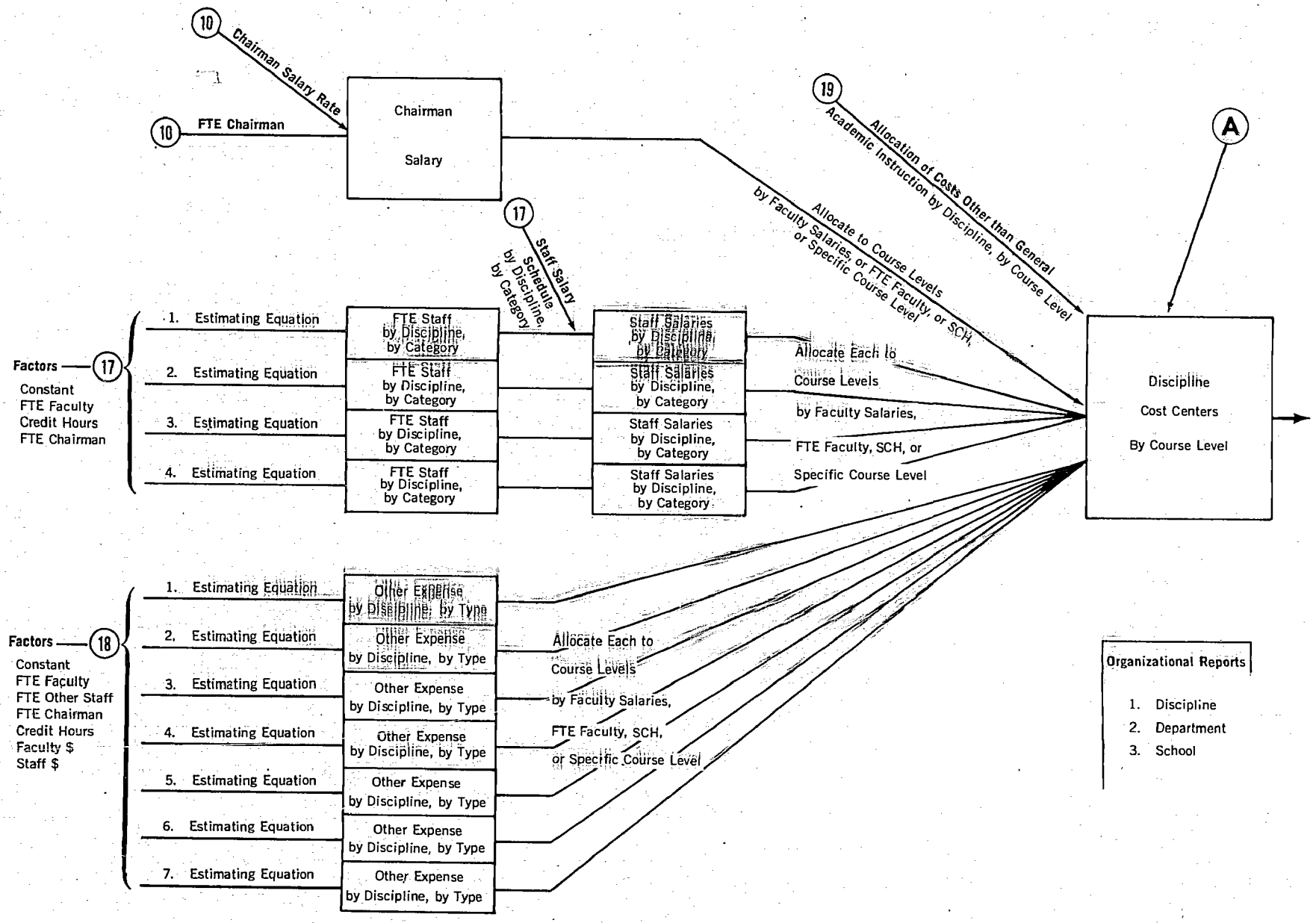
RESOURCE REQUIREMENTS PREDICTION MODEL 1.6
LOGIC FLOW



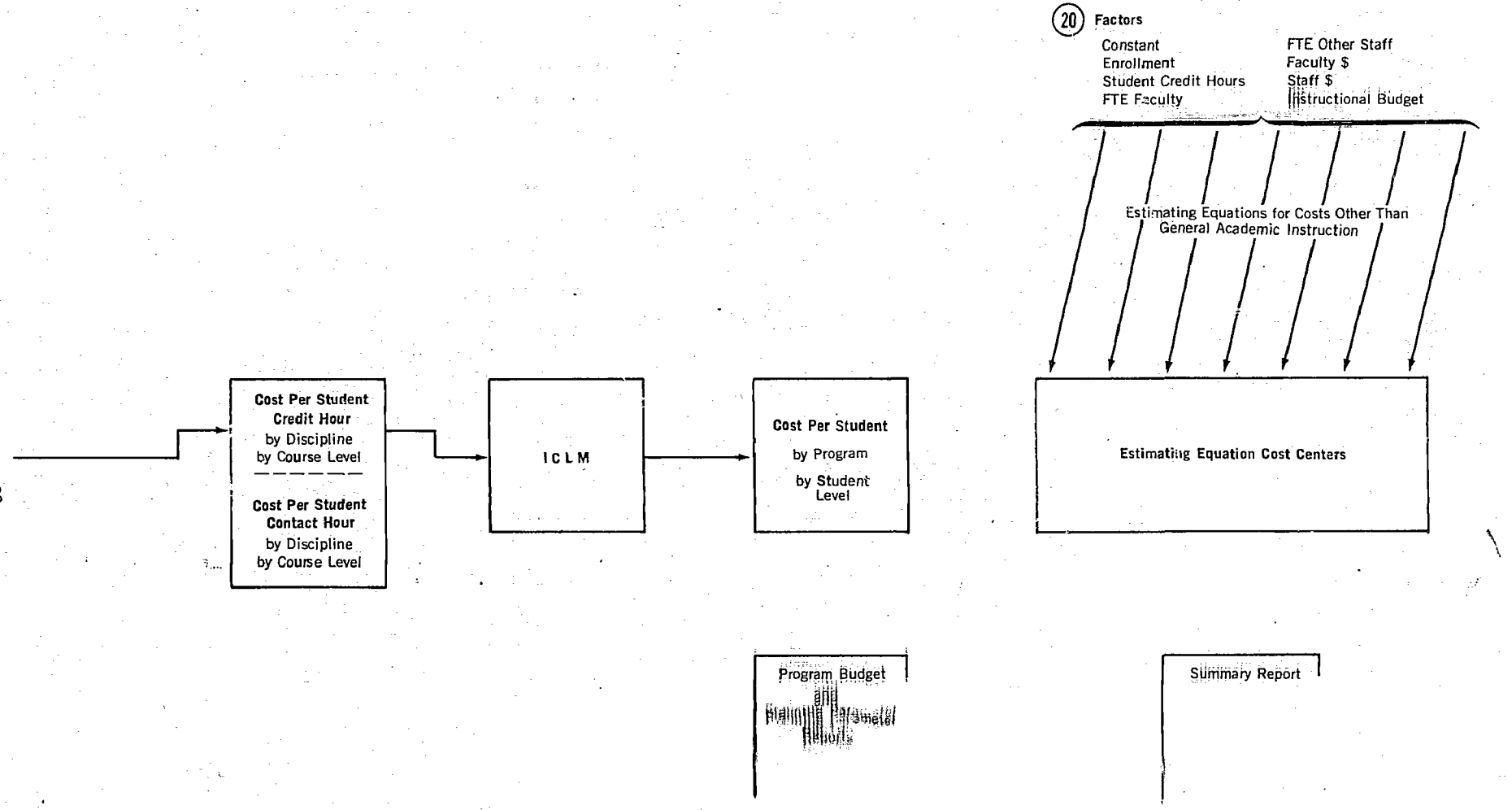
EXAMPLES:

Organizational Levels	Course Levels	Student Levels	Instruction Types	Faculty Ranks	Staff Categories	Other Expense Types
1. Discipline	1. Freshman	1. Freshman	1. Lecture	1. Professor	1. Administrative Assistants	1. Equipment
2. Department	2. Sophomore	2. Sophomore	2. Discussion	2. Associate Professor	2. Secretaries	2. Supplies
3. School	3. Junior	3. Junior	3. Laboratory	3. Assistant Professor	3. Student Help	3. Travel
	4. Senior	4. Senior	4. Independent Study	4. Instructor	4. Other	4. Printing
	5. Graduate 1	5. Graduate 1	5. Other	5. Teaching Assistant		5. Telephone
	6. Graduate 2	6. Graduate 2		6. Other		6. Rentals
	7. Other	7. Other				7. Miscellaneous

*Output of ICLM Generator


10
Chairman Salary Rate
10
FTE Chairman
Chairman
Salary
19
Allocation of Costs Other than General
Academic Instruction by Discipline, by Course Level
A
17
Staff Salary Schedule by Discipline, by Category
Allocate to Course Levels by Faculty Salaries, or FTE Faculty, or SCH, or Specific Course Level
Factors
17
Constant
FTE Faculty
Credit Hours
FTE Chairman
1. Estimating Equation
2. Estimating Equation
3. Estimating Equation
4. Estimating Equation
FTE Staff by Discipline, by Category
Staff Salaries by Discipline, by Category
Allocate Each to Course Levels by Faculty Salaries, FTE Faculty, SCH, or Specific Course Level
Discipline Cost Centers By Course Level
Factors
18
Constant
FTE Faculty
FTE Other Staff
FTE Chairman
Credit Hours
Faculty $
Staff $
1. Estimating Equation
2. Estimating Equation
3. Estimating Equation
4. Estimating Equation
5. Estimating Equation
6. Estimating Equation
7. Estimating Equation
Other Expense by Discipline, by Type
Allocate Each to Course Levels by Faculty Salaries, FTE Faculty, SCH, or Specific Course Level
Organizational Reports
1. Discipline
2. Department
3. School

November/72


20 Factors
Constant
Enrollment
Student Credit Hours
FTE Faculty
FTE Other Staff
Faculty $
Staff $
Instructional Budget
Estimating Equations for Costs Other Than General Academic Instruction
Estimating Equation Cost Centers
Cost Per Student Credit Hour by Discipline by Course Level
Cost Per Student Contact Hour by Discipline by Course Level
ICLM
Cost Per Student by Program by Student Level
Program Budget and Planning Parameter Reports
Summary Report

APPENDIX II

RESOURCE REQUIREMENTS PREDICTION MODEL 1.6

INPUT FORMS

RRPM 1.6 INPUT FORMS

INTRODUCTION

RRPM 1.6 input forms, which aid the user in providing information to the computer-based model, have been designed so as to be largely self explanatory. Each input form has a specific and unique purpose and that purpose has been explicitly expressed on every form for the user's convenience. However, every input form has certain common characteristics. These common characteristics are as follows:

1. RECORD IDENTIFIER

   This is a four-character mnemonic code which uniquely identifies each input record form from other types of records. For example, "DEFN" is the record identifier for the definition record and "MAJR" is the record identifier for the major title record, etc. These codes have been preprinted on the forms for user convenience and are found in positions 1 to 4.

2. ITERATION IDENTIFIER (OPTIONAL)

   This is a two-character field that identifies the output iteration (i.e., year or case). This field is not used by RRPM.

3. SEQUENCE FIELD

   This is an eight-character field that is provided for the user's convenience. It allows the user to sequence the data records, thus allowing the user to update data records easily. It should be noted that input data for RRPM 1.6 can be submitted in a random way (i.e., no required sequence).

4. IDENTIFYING NUMBERS

   It should be noted that disciplines, departments, majors, and colleges (or schools) must be assigned unique identifying codes. Each such identifying code contains a standard alpha character and four characters as illustrated below:

   Discipline codes are: D0001, D0003, D0004, etc.
   Department codes are: T0001, T0002, T0003, etc.
   Major codes are: P0001, P0002, P0003, etc.
   College/School codes are: S0001, S0002, S0003, etc.

   It is imperative that the identifying codes assigned to these organizational units remain consistent for all input to the model.

5. DECIMAL POINT

   The input forms contain decimals for the convenience of the user. However, no decimals are keyed into the input record since they are implied in the RRPM programs.

6. SIGNED NUMERIC VALUES

   Only a few values may be signed. They are indicated by ± printed over the trailing digit. If entered, the sign must be a punch over the trailing digit.

Once data have been input, they will remain static except if intentionally changed. To change data already input to the model, the user is required only to input the linking information such as card type, iteration number, course level, etc., and then the specific data to be changed. If a data field is left blank (not zero), the system will *not* modify the data field.

RESOURCE REQUIREMENTS PREDICTION MODEL

CONTROL RECORD

REQUIRED INPUT

PAGE _____ OF _____

DATE _____

RECORD IDENTIFIER

R	R	P	M	-	1	.	6
1	2	3	4	5	6	7	8

Iteration Out	Iteration Name	Date
9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	27 28 29 30 31 32 33 34

Institution Name

35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

Calculation Method	Iteration In	Warning Option	Additional File Option	Lines Per Page	Sequence
65	66 67	68	69	70 71	73 74 75 76 77 78 79 80

ITERATION OUT	This data item uniquely identifies the set of data to be created and saved for future iterations.
CALCULATION METHOD	This data item identifies the calculation method to be used for all disciplines. Specifically identifying a calculation method for a discipline is accomplished through the Salary Schedule Input Sheet. The calculation codes are (L) for long method and (S) for short method. If this is left blank, (S) is assumed.
ITERATION IN	This identifies the set of data (previous iteration) to be used in creating the iteration out.
WARNING OPTION	To suppress warning messages, enter any non-blank character.
ADDITIONAL FILE OPTION	To indicate that data will be submitted on a second device, insert any non-blank character.
LINES PER PAGE	Enter the number of lines per page desired on the output reports. (Default = 55. Minimum = 30).

RESOURCE REQUIREMENTS PREDICTION MODEL

DEFINITION RECORD

PAGE ____ OF ____

DATE ____

(1)

RECORD IDENTIFIER	ITERATION
D E F N	
1 2 3 4	5 6

OPTIONAL INPUT

Definition	Definition Code
7 8 9 10	11

Definition Name	Definition Abbrev.
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	28 29

Sequence

73 74 75 76 77 78 79 80

This input provides the system with user-supplied names and abbreviations of selected data elements. These labels are used by the system for linking and identifying data elements for either calculating and/or reporting. If the user chooses not to redefine certain data elements, the system will use the definition codes displayed below for the DEFINITION ABBREV.

DATA	DEFINITION	CODE	MAXIMUM NUMBER
1. Organizational Hierarchy (Default: 1 = DISCIPLINE, 2 = DEPARTMENT, 3 = SCHOOL/COLLEGE)	ORGN	1 - 3	3
2. Course Levels*	CRLV	1 - 7	7
3. Student Levels*	STLV	1 - 7	7
4. Instruction Types	INST	1 - 5	5
5. Faculty Ranks	FRNK	1 - 6	6
6. Staff Categories	SCAT	1 - 4	4
7. Discipline Expense Types	EXPN	1 - 7	7

*Optional output of ICLM Generator

RECORD IDENTIFIER: M A J R (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

FIELD OF STUDY TITLES*

PAGE ____ OF ____

DATE ____

(2)

REQUIRED INPUT

Major: P (7 8 9 10 11)

Major Name: (12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27)

Major: P (28 29 30 31 32)

Major Name: (33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48)

Major: P (49 50 51 52 53)

Major Name: (54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69)

Sequence: (73 74 75 76 77 78 79 80)

This input, which is used for reporting, provides the system with titles for all majors defined to the system.

If the name field is left blank, each major name will be a combination of the major number and the word "major." For example, if no name is given for major number 1056, then the name "MAJOR-1056" will be used.

EXAMPLE:

7	8	9	10	11
P	O	O	O	I

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
H	I	S	T	O	R	Y									

*Optional output of ICLM Generator

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE TITLES* (Organizational Level-1)

REQUIRED INPUT

PAGE _____ OF _____

DATE _____

(3)

RECORD IDENTIFIER	ITERATION
D I S C	
1 2 3 4	5 6

Discipline	Discipline Name
D	
7 8 9 10 11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
D	
28 29 30 31 32	33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
D	
49 50 51 52 53	54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69

Sequence

73 74 75 76 77 78 79 80

This input, which is used for reporting, provides the system with titles for all disciplines defined to the system.

If the name field is left blank, each discipline name will be a combination of the discipline number and the word "discipline." For example, if no name is given for discipline 1056, then the name "DISCIPLINE-1056" will be used.

EXAMPLE:

D	O	O	O	I
7	8	9	10	11

E	N	G	L	I	S	H									
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

*Optional output of ICLM Generator

RESOURCE REQUIREMENTS PREDICTION MODEL

DEPARTMENT TO DISCIPLINE ORGANIZATIONAL RELATIONSHIP

(Organizational Level-2 to Organizational Level-1)

OPTIONAL INPUT

PAGE _____ OF _____

DATE _____

4

RECORD IDENTIFIER	ITERATION
D E P T	
1 2 3 4	5 6

Department	Department Name
T	
7 8 9 10 11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

Discipline	Discipline	Discipline	Discipline	Discipline
D	D	D	D	D
28 29 30 31 32	33 34 35 36 37	38 39 40 41 42	43 44 45 46 47	48 49 50 51 52

Discipline	Discipline	Discipline	Discipline	Sequence
D	D	D	D	
53 54 55 56 57	58 59 60 61 62	63 64 65 66 67	68 69 70 71 72	73 74 75 76 77 78 79 80

This input, which is used for reporting, provides the system with the needed information for linking related organizational unit(s) to a higher form of organizational unit established within the institutional hierarchy (i.e., discipline to department).

The name of the level within the organizational hierarchy (i.e., discipline, department) may be changed with input record 1, DEFINITION RECORD.

EXAMPLE:

T O O O 1	H I S T O R Y
7 8 9 10 11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

D O O O 1	D O O O 2
28 29 30 31 32	33 34 35 36 37

RESOURCE REQUIREMENTS PREDICTION MODEL

SCHOOL/COLLEGE TO DEPARTMENT ORGANIZATIONAL RELATIONSHIP

(Organizational Level-3 to Organizational Level-2)

OPTIONAL INPUT

PAGE _____ OF _____

DATE _____

5

RECORD IDENTIFIER	ITERATION
S C H L	
1 2 3 4	5 6

School/College	School/College Name
S	
7 8 9 10 11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

Department	Department	Department	Department	Department
T	T	T	T	T
28 29 30 31 32	33 34 35 36 37	38 39 40 41 42	43 44 45 46 47	48 49 50 51 52

Department	Department	Department	Department
T	T	T	T
53 54 55 56 57	58 59 60 61 62	63 64 65 66 67	68 69 70 71 72

Sequence

73 74 75 76 77 78 79 80

This input, which is used for reporting, provides the system with the needed information for linking related organizational unit(s) to a higher form of organizational unit established within the institutional hierarchy (i.e., departments to schools or colleges).

The name of the level within the organizational hierarchy (i.e., department, school/college) may be changed with input record 1, DEFINITION RECORD.

EXAMPLE:

S	O	O	O	1	B	U	S	I	N	E	S	S		S	C	H	O	O	L	
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

T	O	O	O	1	T	O	O	O	2
28	29	30	31	32	33	34	35	36	37

RECORD IDENTIFIER	ITERATION
I C L M	
1 2 3 4	5 6

RESOURCE REQUIREMENTS PREDICTION MODEL

ICLM DATA*

REQUIRED INPUT

PAGE ____ OF ____

DATE ________

(6)

	Discipline	Student Level
P	D	
7 8 9 10 11	12 13 14 15 16	17 18

Course Level	Hours	Course Level	Hours	Course Level	Hours	Course Level	Hours
19 20	21 22 . 23 24	25 26	27 28 . 29 30	31 32	33 34 . 35 36	37 38	39 40 . 41 42
43 44	45 46 . 47 48	49 50	51 52 . 53 54	55 56	57 58 . 59 60		

Sequence
73 74 75 76 77 78 79 80

This input provides the system with the information for developing an Induced Course Load Matrix (ICLM). RRPM 1.6 supports a four-dimensional ICLM that is by major, by discipline, by student level, and by course level. An ICLM may be defined as the average credit hours taken in various disciplines at various course levels by a major at various student levels. Student and course levels may be defined via DEFINITION RECORD 1.

EXAMPLE:

P 0 0 0 1	D 0 0 0 1	L D
7 8 9 10 11	12 13 14 15 16	17 18

L D	3 . 5 0	U D	2 . 8 0
19 20	21 22 23 24	25 26	27 28 29 30

*Optional output of ICLM Generator

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RESOURCE REQUIREMENTS PREDICTION MODEL

ENROLLMENT BY FIELD OF STUDY BY STUDENT LEVEL*

REQUIRED INPUT

RECORD IDENTIFIER	ITERATION
E N R L	
1 2 3 4	5 6

PAGE _____ OF _____

DATE _____

(7)

Major	Student Level	Major Enrollment	Student Level	Major Enrollment	Student Level	Major Enrollment
P						
7 8 9 10 11	12 13	14 15 16 17 18	19 20	21 22 23 24 25	26 27	28 29 30 31 32

Student Level	Major Enrollment	Student Level	Major Enrollment	Student Level	Major Enrollment	Student Level	Major Enrollment
33 34	35 36 37 38 39	40 41	42 43 44 45 46	47 48	49 50 51 52 53	54 55	56 57 58 59 60

Sequence
73 74 75 76 77 78 79 80

This input provides the system with the student enrollment for every major by student level. The enrollment provided is either headcount enrollment or institutionally defined FTE enrollment.

EXAMPLE:

P	O	O	O	1	L	D			7	4	U	D			8	7
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

*Optional output of ICLM Generator

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE FACULTY PRODUCTIVITY RATIO

REQUIRED INPUT | **SHORT METHOD**

PAGE ____ OF ____

DATE _____

(8)

RECORD IDENTIFIER: P R O D (1 2 3 4)

ITERATION: (5 6)

Discipline	Course Level	Productivity Ratio	Course Level	Productivity Ratio	Course Level	Productivity Ratio
D (7 8 9 10 11)	(12 13)	(14 15 16 17 18 19)	(20 21)	(22 23 24 25 26 27)	(28 29)	(30 31 32 33 34 35)

Course Level	Productivity Ratio	Course Level	Productivity Ratio	Course Level	Productivity Ratio
(36 37)	(38 39 40 41 42 43)	(44 45)	(46 47 48 49 50 51)	(52 53)	(54 55 56 57 58 59)

Course Level	Productivity Ratio	Sequence
(60 61)	(62 63 64 65 66 67)	(73 74 75 76 77 78 79 80)

This input provides the system with information needed for calculating FTE faculty requirements. It indicates the average number of credit hours an FTE teaching faculty is to generate for a discipline at a course level.

EXAMPLE:

D O O O 1	L D	0 3 5 9 0 0	U D	0 2 7 7 0 0
(7 8 9 10 11)	(12 13)	(14 15 16 17 18 19)	(20 21)	(22 23 24 25 26 27)

RECORD IDENTIFIER: R M I X (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE FACULTY RANK DISTRIBUTION

PAGE _____ OF _____

DATE _____

(9)

REQUIRED INPUT

SHORT METHOD

Discipline	Course Level	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution
D (7 8 9 10 11)	(12 13)	(16 17)	(18 19 20 21)	(22 23)	(24 25 26 27)	(28 29)	(30 31 32 33)
		Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution
		(34 35)	(36 37 38 39)	(40 41)	(42 43 44 45)	(46 47)	(48 49 50 51)

Sequence (73 74 75 76 77 78 79 80)

This input supplies the system with data for distributing the total discipline faculty to six types of user-defined faculty ranks. Faculty ranks may be defined via DEFINITION RECORD 1.

EXAMPLE:

D O O O I	L D	P R	. I 0 0	A P	. 2 0 0	I N	. 7 0 0
7 8 9 10 11	12 13	16 17	18 19 20 21	22 23	24 25 26 27	28 29	30 31 32 33

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE FACULTY SALARY SCHEDULE AND CHAIRMAN DATA

REQUIRED INPUT

PAGE _____ OF _____

DATE _____

(10)

RECORD IDENTIFIER: F S A L (1 2 3 4)

ITERATION: (5 6)

Discipline	Faculty Rank	Faculty Salary	Faculty Rank	Faculty Salary	Faculty Rank	Faculty Salary
D (7 8 9 10 11)	(12 13)	(14 15 16 17 18)	(19 20)	(21 22 23 24 25)	(26 27)	(28 29 30 31 32)
	Faculty Rank	Faculty Salary	Faculty Rank	Faculty Salary	Faculty Rank	Faculty Salary
	(33 34)	(35 36 37 38 39)	(40 41)	(42 43 44 45 46)	(47 48)	(49 50 51 52 53)

Chairman Allocation Method	Chairman FTE	Chairman Salary	Calculation Method	Sequence
(54 55 56)	(57 58 59)	(60 61 62 63 64)	(65)	(73 74 75 76 77 78 79 80)

This input provides the system with the discipline salary schedule for the six teaching faculty ranks and certain chairman-related data. The chairman's information is the number or proportion of FTE chairmen to be allocated to a discipline, their average salary, and the selected method to be used in allocating their cost to course levels. The allocation methods available are: FTE faculty (FTE); faculty salaries (SAL); student credit hours (SCH); and specific course level (left justified, 2 position). The calculation method is identified by the codes (L) for long method and (S) for short method. The calculation method needs to be identified *only* if it is different from the calculation method established on the control record.

EXAMPLE:

D	0	0	0	1	P R	1 7 0 0 0	A P	1 4 5 0 0	1 N	9 5 0 0
7	8	9	10	11	12 13	14 15 16 17 18	19 20	21 22 23 24 25	26 27	28 29 30 31 32

Note: If no allocation method is given, FTE faculty is assumed.

RECORD IDENTIFIER: C O N T (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE RATIO OF STUDENT CONTACT HOURS TO STUDENT CREDIT HOURS

PAGE _____ OF _____

DATE _____

(11)

OPTIONAL INPUT

LONG METHOD

Discipline	Course Level	Ratio of Contact Hours to Credit Hours	Course Level	Ratio of Contact Hours to Credit Hours	Course Level	Ratio of Contact Hours to Credit Hours
D (7 8 9 10 11)	(12 13)	(14 15 16)	(17 18)	(19 20 21)	(22 23)	(24 25 26)

Course Level	Ratio of Contact Hours to Credit Hours	Course Level	Ratio of Contact Hours to Credit Hours	Course Level	Ratio of Contact Hours to Credit Hours	Course Level	Ratio of Contact Hours to Credit Hours
(27 28)	(29 30 31)	(32 33)	(34 35 36)	(37 38)	(39 40 41)	(42 43)	(44 45 46)

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with an estimate of the number of contact hours demanded of a discipline at a course level.

EXAMPLE:

D	O	O	O	1	E	D	1	0	0	U	D	1	0	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Note: This need be entered only if other than 1.00, since the system will use 1.00 as default.

RECORD IDENTIFIER: T Y P E (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE STUDENT CONTACT HOUR DISTRIBUTION TO INSTRUCTION TYPES

REQUIRED INPUT | **LONG METHOD**

PAGE ____ OF ____

DATE _____

(12)

Discipline	Course Level	Instruction Type	Instruction Type Percent	Instruction Type	Instruction Type Percent	Instruction Type	Instruction Type Percent
D (7 8 9 10 11)	(12 13)	(14 15)	(16 17 18)	(19 20)	(21 22 23)	(24 25)	(26 27 28)
		Instruction Type (29 30)	Instruction Type Percent (31 32 33)	Instruction Type (34 35)	Instruction Type Percent (36 37 38)		

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with the necessary information for distributing the total number of discipline contact hours at a course level to the five types of instruction. The five types of instruction are defined by input record 1, DEFINITION RECORD.

EXAMPLE:

D	O	O	O	I	L	D	D	I		4	0	L	A		6	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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RECORD IDENTIFIER: S E C T (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE SECTION SIZE

REQUIRED INPUT

LONG METHOD

PAGE ____ OF ____

DATE _____

(13)

Discipline	Course Level	Instruction Type	Section Size	Instruction Type	Section Size	Instruction Type	Section Size
D (7 8 9 10 11)	(12 13)	(14 15)	(16 17 18 19)	(20 21)	(22 23 24 25)	(26 27)	(28 29 30 31)

Instruction Type	Section Size	Instruction Type	Section Size	Sequence
(32 33)	(34 35 36 37)	(38 39)	(40 41 42 43)	(73 74 75 76 77 78 79 80)

This input provides the system with the average section size for each discipline at a course level for each type of instruction.

EXAMPLE:

D	O	O	O	I	L	D	D	I			2	5	L	A			1	5
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Note: This input actually specifies the number of contact hours satisfied by one class meeting. This usually is the same as section size.

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE RATIO OF FACULTY CONTACT HOURS TO CLASS MEETINGS
Team Teaching

PAGE ____ OF ____
DATE _____

(14)

RECORD IDENTIFIER: F C T H (1 2 3 4)
ITERATION: (5 6)

OPTIONAL INPUT | **LONG METHOD**

Discipline	Course Level	Instruction Type	Ratio of FCTH to CMTG	Instruction Type	Ratio of FCTH to CMTG	Instruction Type	Ratio of FCTH to CMTG
D (7 8 9 10 11)	(12 13)	(14 15)	(16 17 18)	(19 20)	(21 22 23)	(24 25)	(26 27 28)

Instruction Type	Ratio of FCTH to CMTG	Instruction Type	Ratio of FCTH to CMTG
(29 30)	(31 32 33)	(34 35)	(36 37 38)

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with the information for adjusting the number of faculty contact hours for such things as team teaching. It indicates whether there is more or less than one faculty member assigned to a class section.

EXAMPLE:

D	O	O	O	I	L	D	D	I	I	0	0	L	A	I	0	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Note: This need be entered only if other than 1.00, since the system will use 1.00 as default.

RECORD IDENTIFIER: L O A D (1 2 3 4) — ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE FACULTY WORKLOAD

REQUIRED INPUT — **LONG METHOD**

PAGE ____ OF ____

DATE ____

15

Discipline	Course Level	Instruction Type	Faculty Workload	Instruction Type	Faculty Workload	Instruction Type	Faculty Workload
D (7 8 9 10 11)	(12 13)	(14 15)	(16 17 18 19)	(20 21)	(22 23 24 25)	(26 27)	(28 29 30 31)

Instruction Type	Faculty Workload	Instruction Type	Faculty Workload
(32 33)	(34 35 36 37)	(38 39)	(40 41 42 43)

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with the average faculty workload for each discipline, which is used for calculating the number of teaching faculty required for each discipline at a course level at an instruction type.

EXAMPLE:

D O O O 1	L D	D 1	1 2 0 0	L A	1 2 0 0
(7 8 9 10 11)	(12 13)	(14 15)	(16 17 18 19)	(20 21)	(22 23 24 25)

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE FACULTY RANK DISTRIBUTION

PAGE ____ OF ____

DATE _____

16

RECORD IDENTIFIER	ITERATION
F M I X	
1 2 3 4	5 6

REQUIRED INPUT | **LONG METHOD**

Discipline	Course Level	Instruction Type	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution
D								
7 8 9 10 11	12 13	14 15	16 17	18 19 20 21	22 23	24 25 26 27	28 29	30 31 32 33

Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution	Faculty Rank	Rank Distribution
34 35	36 37 38 39	40 41	42 43 44 45	46 47	48 49 50 51

Sequence

73 74 75 76 77 78 79 80

This input supplies the system with data for distributing the total discipline faculty at a course level at an instruction type to six types of user-defined faculty.

EXAMPLE:

D	O	O	O	I	L	D	D	I	P	R		I	0	0	A	P		2	0	0	I	N		7	0	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE ESTIMATING EQUATIONS FOR STAFF

OPTIONAL INPUT

PAGE ____ OF ____

DATE _____

(17)

RECORD IDENTIFIER	ITERATION
S T A F	
1 2 3 4	5 6

Discipline	Category Code	Constant ±	FTE Faculty Coefficient ±	Student Credit Hour Coefficient ±	FTE Chairman Coefficient ±
D					
7 8 9 10 11	12 13	14 15 16 17 18	19 20 21 22	23 24 25 26	27 28 29 30

Staff Salary	Allocation Method
31 32 33 34 35	36 37 38

Sequence

73 74 75 76 77 78 79 80

This input provides the system with the equation for estimating discipline staff other than instructional faculty. It also provides the system with the user-selected method for allocating the cost associated with the other staff to course levels. The allocation methods available are: FTE faculty (FTE); faculty salaries (SAL); student credit hours (SCH); and specific course level (left justified, 2 position). The user is allowed to define a maximum of four categories of "other" staff (i.e., secretaries, student assistants, faculty on sabbatical, clerks). See DEFINITION RECORD 1.

EXAMPLE:

D	0	0	0	1	0	1			1	0	0		5	0	0	F	T	E
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	36	37	38

Note: If no allocation method is given, FTE faculty is assumed.

RESOURCE REQUIREMENTS PREDICTION MODEL

DISCIPLINE "OTHER" EXPENSE ESTIMATING EQUATIONS

PAGE _____ OF _____

DATE _____

18

RECORD IDENTIFIER: E X P N (1 2 3 4)

ITERATION: (5 6)

OPTIONAL INPUT

Discipline	Expenditure Type	Constant ±	FTE Faculty Coefficient ±	FTE Staff Coefficient ±
D (7 8 9 10 11)	(12 13)	(14 15 16 17 18 19)	(20 21 22 23 24)	(25 26 27 28 29)

FTE Chairman Coefficient ±	Student Credit Hour Coefficient ±	Faculty Salary Coefficient ±	Staff Salary Coefficient ±	Allocation Method
(30 31 32 33 34)	(35 36 37 38 39)	(40 41 42 43)	(44 45 46 47)	(48 49 50)

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with the equation for estimating the discipline costs other than staff (i.e., equipment, supplies, travel, etc.). It also provides the system with the user-selected method for allocating the cost associated with the "other" expense to course levels. The allocation methods available are: FTE faculty (FTE); faculty salaries (SAL); student credit hours (SCH); and specific course level (left justified, 2 position). The user is allowed to define a maximum of seven types of "other" expense. See DEFINITION RECORD 1.

EXAMPLE:

D O O O 1	0 1	1 8 5 5	1 0	S A L
(7 8 9 10 11)	(12 13)	(14 15 16 17 18 19)	(20 21 22 23 24)	(48 49 50)

Note: If no allocation method is given, FTE faculty is assumed.

RECORD IDENTIFIER

A	D	D	T
1	2	3	4

ITERATION

5	6

RESOURCE REQUIREMENTS PREDICTION MODEL

ALLOCATION OF COSTS OTHER THAN GENERAL ACADEMIC INSTRUCTION TO DISCIPLINES

OPTIONAL INPUT

PAGE ____ OF ____

DATE ____

19

Discipline	Course Level	Additional Costs	Course Level	Additional Costs	Course Level	Additional Costs
D						
7 8 9 10 11	12 13	14 15 16 17 18 19	20 21	22 23 24 25 26 27	28 29	30 31 32 33 34 35
	Course Level	Additional Costs	Course Level	Additional Costs	Course Level	Additional Costs
	36 37	38 39 40 41 42 43	44 45	46 47 48 49 50 51	52 53	54 55 56 57 58 59
	Course Level	Additional Costs				Sequence
	60 61	62 63 64 65 66 67				73 74 75 76 77 78 79 80

This input provides a means of allocating noninstructional costs to discipline by level of course.

These data, if entered, may come from some other system, such as Cost Finding Principles.

EXAMPLE:

D	0	0	0	1	L	D		1	0	0	0	0	U	D			9	0	0	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

RECORD IDENTIFIER: E S T Q (1 2 3 4) ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

ESTIMATING EQUATION FOR COSTS OTHER THAN GENERAL ACADEMIC INSTRUCTION

OPTIONAL INPUT

PAGE ____ OF ____

DATE _____

(20)

Estimating Equation No. (7 8 9 10)

Estimating Equation Name* (11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26)

Constant ± (27 28 29 30 31 32 33 34)

Enrollment Coefficient ± (35 36 37 38 39 40)

FTE Faculty Coefficient ± (41 42 43 44 45 46 47)

Student Credit Hour Coefficient ± (48 49 50 51 52 53)

Staff Coefficient ± (54 55 56 57 58 59)

Faculty Salaries Coefficient ± (60 61 62 63)

Staff Salaries Coefficient ± (64 65 66 67)

Instructional Budget Coefficient ± (68 69 70 71 72)

Sequence (73 74 75 76 77 78 79 80)

This input provides the system with the equation for estimating the cost for institutionally defined organizational units other than general academic and vocational instruction (i.e., library costs, physical plant costs, etc.). The user is allowed to define a maximum of 9,889 equations. If the user chooses to incorporate a major heading for grouping-related equations, he simply indicates this by a related numeric value in the higher order position (positions 7 and 8) and zeroes in the low-order position (positions 9 and 10) at the equation number.

Example:

2.00 research
2.02 individual research
2.03 organized research

Note: Estimating equation nos. 0.00 through 01.10 are predefined by the system and may not be user input.

*The estimating equation name is required in order to create this record.

RECORD IDENTIFIER: P C N T (1 2 3 4)

ITERATION: (5 6)

RESOURCE REQUIREMENTS PREDICTION MODEL

BLANKET PARAMETER CHANGE

OPTIONAL INPUT

PAGE ____ OF ____

DATE _____

21

Change Identifier	Major or Discipline	Rank, Student Level, or Course Level	Instr. Type	Percentage Amount Change ±
(7 8 9 10)	(11 12 13 14 15)	(16 17)	(18 19)	(20 21 22 23 24 25)

(Right Justified)

Sequence (73 74 75 76 77 78 79 80)

This input allows percentage increases or decreases across disciplines or majors. The user is provided with the flexibility of either changing a parameter across all disciplines or majors at any or all level(s), or changing a parameter of a specific discipline or major at any or all level(s). Levels containing all asterisks will be considered as covering all levels. The parameters and their respective codes and levels are as follows:

PARAMETER	CHANGE IDENTIFIER	MAJOR NUMBER	DISCIPLINE NUMBER	STUDENT LEVEL	COURSE LEVEL	PERSONNEL RANK	INSTRUCTION TYPE
1. Student Enrollment	ENRL	x		x			
2. Productivity Ratio (short method)	PROD		x		x		
3. Faculty Salaries	FSAL		x			x	
4. Chairman Salaries	CSAL		x				
5. Support Staff Salaries	SSAL		x			x	
6. Credit to Contact Hour Ratio (long method)	CONT		x		x		
7. Section Size (long method)	SECT		x		x		x
8. Faculty Workload (long method)	LOAD		x		x		x

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RESOURCE REQUIREMENTS PREDICTION MODEL

FORMATTED FILE DISPLAY REQUEST RECORD

PAGE ____ OF ____

DATE _____

RECORD IDENTIFIER

R	R	P	M	-	1	.	6	-	(	0	5	)
1	2	3	4	5	6	7	8	9	10	11	12	13

Iterations Requested (All, Specific)

I	T	E	R	=				
15	16	17	18	19	20	21	22	23

Definition Date Requested (Y = Yes, N = No)

D	E	F	N	=	
25	26	27	28	29	30

ICLM Data Requested (Y = Yes, N = No)

I	C	L	M	=	
32	33	34	35	36	37

Discipline Data Requested (Y = Yes, N = No)

D	I	S	C	=	
39	40	41	42	43	44

Major Data Requested (Y = Yes, N = No)

M	A	J	R	=	
46	47	48	49	50	51

Non-Instr. Data Requested (Y = Yes, N = No)

N	I	E	E	=	
53	54	55	56	57	58

Lines Per Page Requested

L	I	N	E	S	=		
60	61	62	63	64	65	66	67

Sequence

73	74	75	76	77	78	79	80

This request record allows the user to display the contents of the RRPM 1.6 Master File. If no requests are present during execution, only limited data concerning the file will be displayed (i.e., file inventory). The program will accept multiple requests. These requests should be in iteration (ITER) order (i.e., ascending order).

In order to complete this form, the user must identify what information on the RRPM 1.6 file needs to be displayed. To indicate the number of iterations (ITER), use "ALL" for all iterations wanted: and for a specific iteration, indicate the two-character iteration identifier used when the file was created. For the definition, ICLM, discipline, major or non-instructional data, use "N" (or blank) for no data displayed, any other character will display data. Lines per page allow the users to override the existing lines per page. Enter a two-digit, right-justified number greater than 29.

RESOURCE REQUIREMENTS PREDICTION MODEL

REPORTS REQUEST RECORD

PAGE _____ OF _____

DATE _____

RECORD IDENTIFIER -

R	R	P	M	-	1	.	6	-	(	0	6	)
1	2	3	4	5	6	7	8	9	10	11	12	13

Iterations Requested (All, Specific)

I	T	E	R	=			
16	17	18	19	20	21	22	23

Organizational Budget Report (Y = Yes, N = No)

O	R	G	N	-	B	U	D	=	
26	27	28	29	30	31	32	33	34	35

Lowest Organizational Level

36

Program Budget Report (Y = Yes, N = No)

P	R	O	G	-	B	U	D	=	
38	39	40	41	42	43	44	45	46	47

Institution Summary Report (Y = Yes, N = No)

I	N	S	T	-	S	U	M	=	
50	51	52	53	54	55	56	57	58	59

Lines Per Page

L	I	N	E	S	=		
62	63	64	65	66	67	68	69

Sequence

73	74	75	76	77	78	79	80

This request record allows the user to specify which of three reports for any or all iterations should be produced. If no requests are present during execution, all reports will be produced for all iterations present on the file. The program will accept multiple requests. These requests should be in iteration (ITER) order (i.e., ascending order).

In order to complete this form, the user must indicate the reports desired and for what iterations. To indicate the number of iterations (ITER), use "ALL" for all iterations wanted. for a specific iteration, indicate the two-character iteration identifier used when the file was created. To request any of the three reports (organization budget, program budget, or institutional summary), enter any character other than "N" or blank. To suppress any of the reports. enter "N" or blank. To override the existing lines per report page, enter a two-digit, right-justified number greater than 29.

The user should indicate the lowest organizational level requested on the organization budget. The valid entries are: (4) institutional levels only; (3) levels 3 and 4; (2) levels 2, 3 and 4: (1) levels 1, 2, 3 and 4: any other entry or blank gives all institutional levels.

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